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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,300	09/25/2000	Hitoshi Igarashi	Q60641	1596
7590	02/09/2004		EXAMINER	
Sughrue Mion Zinn MacPeak & Seas PLLC 2100 Pennsylvania Avenue NW Washington, DC 20037-3213			MOUTTET, BLAISE L	
		ART UNIT	PAPER NUMBER	
		2853		
DATE MAILED: 02/09/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/667,300	IGARASHI ET AL.	
	Examiner	Art Unit	
	Blaise L Mouttet	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 February 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 12 is/are allowed.
- 6) Claim(s) 1,6,8 and 9 is/are rejected.
- 7) Claim(s) 2-5,7,10 and 11 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 25 September 2000 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2/16/2001</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Preliminary Amendment

1. The preliminary amendment of September 25, 2000 has been entered.

Specification

2. The disclosure is objected to because of the following informalities:

On page 3, line 9 "applied motor" should read --applied to the motor--.

On page 8, line 9 "paper 10" should read --paper 50 -- in accordance with the drawings.

Appropriate correction is required.

Claim Objections

3. Claims 5, 7 and 9-11 are objected to because of the following informalities:

Claim 5 should depend from claim 2 since claim 2 provides antecedent basis for "the stoppage current calculating part" as recited in claim 5.

Claim 7 should depend from claim 2 since claim 2 provides antecedent basis for "the stoppage constant T_{BRK}" as recited in claim 7.

In claim 7, line 3 "applied motor" should read --applied to the motor-- in accordance with proper syntax.

In claim 9, lines 6-7 "the constant speed control" should read --a constant speed control-- since this limitation lacks antecedent basis.

For purposes of examination under 35 USC 102 and 35 USC 103 the above changes are assumed.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teshima US 5,159,254 in view of Hayashida et al 4,558,265.

(It is noted that while applicant has recited the control unit and method for controlling a motor "for use in a printer" in the preamble of the claims this is not seen to limit the claim since it does not add any structural or process limitations to the claims.)

Teshima discloses, regarding claims 1 and 9, a control unit and method for controlling a motor comprising:

a speed control part (102) to control an object to be controlled that is driven by the motor by acceleration and velocity control by controlling a current applied to the motor as shown and described in relation to figure 1;

an inertia calculating part (6) to perform a calculating step to calculate inertia of the object based on angular acceleration of the motor that accelerates the object (acceleration time = $1/T_p$), and current values to be applied to the motor (I_{max}) under the acceleration control of the object (column 6, lines 52-54), the calculated inertia being used by the speed control part to perform a controlling step to control the current to be applied to the motor (column 2, lines 29-38).

Regarding claim 6, a velocity detector (106) is taught by Teshima and the equivalence between the rotary velocity/acceleration of the motor and the linear velocity/acceleration of the object being moved is taught (column 4, lines 9-16).

Regarding claim 8, the movable table as described in column 1, lines 6-12 constitutes a carriage (def: a movable part of a machine for supporting another movable part).

Teshima fails to disclose, regarding claims 1, that the speed control part controls the motor under constant speed control, deceleration control and stoppage control.

Teshima fails to disclose, regarding claim 6, a period measuring part to measure a period of output pulses from an encoder and angular velocity/acceleration of the motor being calculated from the period measuring part.

Teshima fails to disclose, regarding claim 9, a constant speed control of the object.

Hayashida et al. discloses, regarding claims 1 and 9, that ideal speed control of a motor typically includes acceleration control, constant speed control, deceleration control and stoppage control (column 6, line 52 – column 7, line 17).

Hayashida et al. discloses, regarding claim 6, that a period measuring part (4) is useful in measuring output pulses of an encoder (generating encoded signal 10) to determine angular velocity/acceleration of a motor as shown and described in relation to figures 8, 13, 14 and column 13, lines 13-28, column 14, lines 41-44.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include constant speed control, deceleration control and stoppage control as taught by Hayashida et al. in the motor control of Teshima.

The motivation for doing so would have been to achieve ideal speed control under various control conditions of the motor.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a period measuring part to measure an encoder of the motor as taught by Hayashida et al. to achieve the angular velocity and acceleration measurements of Teshima.

The motivation for doing so would have been that the period measuring part was an equivalent mechanism to the velocity detector (106) and position detector (107) taught by Teshima and also provides additional information useful to motor control (i.e. rotation direction).

Allowable Subject Matter

5. Claim 12 is allowable.

Claims 2-5, 7, 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of the allowability of claims 2-5 and 7 is the inclusion therein, in combination as currently claimed, of the limitation of the stoppage current calculating part that calculates the stoppage current based on the calculated inertia, an angular velocity of the motor under deceleration control of the object, the current value of the motor under constant speed control of the object, and a stoppage constant. This limitation is found in claims 2-5 and 7 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claim 10 is the inclusion therein, in combination as currently claimed, of the step of calculating the stoppage current based on the calculated inertia, an angular velocity of the motor under

deceleration control of the object, the current value of the motor under constant speed control of the object, and a stoppage constant. This limitation is found in claim 10 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claim 11 is the inclusion therein, in combination as currently claimed, of the limitation that the object of the calculating and controlling steps is a carriage of a serial printer. This limitation is found in claim 11 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claim 12 is the inclusion therein, in combination as currently claimed, of the program code for calculating the stoppage current based on the calculated inertia of the carriage, an angular velocity of the motor under deceleration control of the carriage, the current value of the motor under constant speed control of the carriage, and a stoppage constant. This limitation is found in claim 12 and is neither disclosed nor taught by the prior art of record, alone or in combination.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet who may be reached at telephone number (703) 305-3007 (before February 11, 2004) or (571) 272-2150 (after February 11, 2004). The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier, Art Unit 2853, can be reached at (703) 308-4896. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet February 2, 2004

Bm 2/2/2004

Blaise Mouttet
Primary Examiner
2853
2/5/04